

REMARKS

Reconsideration of the present application in view of the following remarks is respectfully requested.

I. STATUS OF THE CLAIMS

Claims 54, 55, 57 – 66, 68 – 89, and 91 - 99 are now pending in the present application. No claims have been amended, and no new claims have been added.

II. RESPONSE TO THE OUTSTANDING OFFICE ACTION

In the outstanding office action, the Examiner has rejected claims 54, 55, 57-64, 66, 68-85, 87-89, 91-93, 95 and 97-99 under 35 U.S.C. 103(a) as being unpatentable over Smits et al. (US 4,945,119). (See paragraph 5 of the office action). The Examiner has also rejected claims 55, 60-62, 65, 66, 69, 76-80, 82-86 and 93-99 under 35 U.S.C. 103(a) as being unpatentable over Smits et al. (US 4,945,119) and further in view of Nimitz et al. (US 5,674,451).

Applicants respectfully traverse the Examiner's position. Applicants acknowledge the teaching in Smits et al. of compositions containing, in addition to other components, fluorinated propylene compounds. Specifically, the Smits et al. patent teaches blowing agents comprising a first component and a second component, wherein the second component may be selected from a large number of organic compounds. The Smits et al. patent indicates that the organic compounds that comprise the second component may include "propylene halocarbons," with the following being expressly mentioned: hexafluoropropylene (R-2116a); pentafluoropropylene (R-2125a); tetrafluoropropylene (R-2134a); and difluoropropylene (R-2152b). (see col. 5, ll. 32 – 66). As acknowledged by the Examiner, the Smits et al. patent "is silent as to all the isomers of the propylenes..." (See office action, page 3, first paragraph).

The principal basis for the present traversal of the Examiner's rejection is that compounds which satisfy the structural requirements of the present claims

tend to produce unexpected results. In particular, applicants have unexpectedly found that the compounds defined by the present claims tend to possess certain properties that patentably distinguish those compounds from compounds that are structurally similar but outside the scope of the present claims.

The cited patent to Smits et al. teaches generally, without any mention or suggestion of any isomeric forms, pentafluoropropylene or tetrafluoropropylene compounds. The Examiner has stated:

Nothing unobvious is seen in substituting the known claimed isomer for the structurally similar isomers taught by Smits since structurally related compounds suggest one another and would be expected to share common properties **absent a showing of unexpected results**.

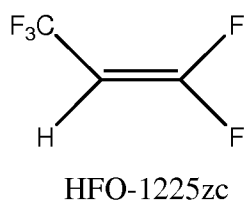
(See office action, page 3, third paragraph). While applicants do not concede that Smits et al. teaches any isomers of pentafluoropropylene or tetrafluoropropylene, it is acknowledged by the undersigned that the different isomeric forms of pentafluoropropylene and tetrafluoropropylene might be considered unpatentable over a generic teaching **absent a showing of unexpected results**.¹

The claims as now presented define subject matter which is patentable over the cited patents based, in large part, on the showing of unexpected results, as described in the present application and as supplemental by the Rule 132 Declaration of George Rusch dated April 25, 2007 ("the Rusch Declaration").

¹ Applicants do not necessarily concede that the Examiner is correct in each of the assertions made in the outstanding office action, including for example the assertion that structurally related compounds "would be expected to share common properties," and the assertions made regarding the teachings and motivations contained in the prior art. Nevertheless, it is not necessary to specifically address each of the assertions because the Examiner's assertions are all essentially mooted by the showing of unexpected results presented herein. Applicant's reserve the right, however, to specifically address the correctness of all the Examiner's assertions should the need arise at a later stage of prosecution of this case or a continuation or divisional case.

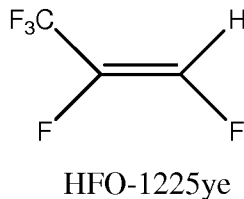
More specifically, it is noted that one of the requirements of the claims now pending is that “there is not more than one F on the unsaturated, terminal carbon” of the compound of Formula (II). This feature is significant, particularly in the context of blowing agent compositions, in that it is generally desirable for such compositions to have a relatively low level of toxicity.

As established by the Rusch Declaration², toxicological testing of a compound known as HFO-1225zc (1,1,3,3,3-pentafluoropropene)



had been conducted by a third party prior to the filing of the present application and had shown this compound, which is outside the requirements of claim 1 because it includes two F on the unsaturated terminal carbon, to have a relatively high level of toxicity. This information, which is described in the attached Rusch Declaration (see paragraph 2), revealed that HFO-1225zc had an LC₅₀ or median lethal concentration required to kill half the members of a tested population, as low as 2,000 ppm. Since LC₅₀ represents the concentration at which a measure of lethality occurs, the lower the value of LC₅₀, the more toxic the material is considered to be, and the higher the value, the less toxic the material is considered to be.

In contrast to HFO-1234zc, a structurally similar compound within the scope of claim 1, namely HFO-1225ye (1,2,3,3,3-pentafluoropropene)



² It is noted that the Rusch Declaration was originally filed in connection with the prosecution of a related application, namely, application 10/837,525, and that a copy of the declaration as filed therein is attached hereto.

was found by applicants to be much less toxic than HFO-1225zc. (see, for example, paragraphs 3 and 4 of the Rusch Declaration). More specifically, the LC₅₀ of HFO-1225ye, which is within the scope of the claims, has a toxicity concentration that is at least **one hundred and twenty five times greater** than that of HFO-1225zc, which is **not** within the scope of the claims. This difference is dramatic and is in no way suggested or expected in view of any of the prior art cited by the Examiner or any other art known to applicants.

III. CONCLUSION

Applicants believe that the claims as now pending patentably distinguished over the prior art, and an early notice thereof is hereby earnestly solicited. Should the Examiner have any questions regarding this response, she is invited to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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